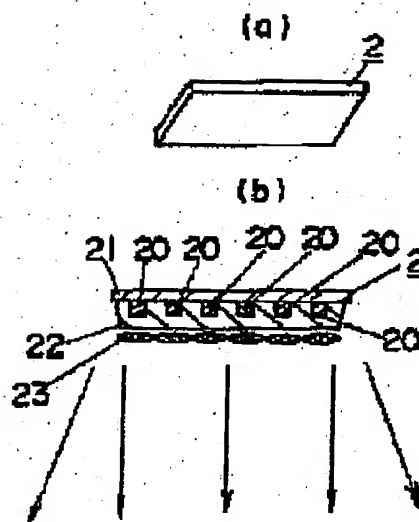


**LED LIGHTING MODULE****Patent number:** JP11162232**Publication date:** 1999-06-18**Inventor:** KAMATA SAKUO; KOYAMA SHOICHI; ASAHI NOBUYUKI; SUZUKI TOSHIYUKI; SHIOHAMA EIJI; SUGIMOTO MASARU; YAMAMOTO SHOHEI; HASHIZUME JIRO; AKIBA YASUSHI; TANAKA KOJI**Applicant:** MATSUSHITA ELECTRIC WORKS LTD**Classification:****- International:** F21V19/00; F21V8/00; F21V9/10; H01L33/00**- european:****Application number:** JP19970323551 19971125**Priority number(s):****Abstract of JP11162232**

**PROBLEM TO BE SOLVED:** To provide an LED lighting module capable of efficient control of light distribution or convergence in the arrangement of a plurality of LED chips.

**SOLUTION:** This module 2 comprises a plurality of LED chips 20..., which are bare-chip mounted on the surface of a resin substrate 21, a transparent acrylic resin molded layer 2 formed on the surface of the substrate so as to seal the LED chips 20..., and a microlens plate 23 arranged thereon to control light emission, considering the light distribution of the whole LED lighting module 2. The light distribution is set by the microlens 23, for example, so that the emission angle of light from the whole module 2 is -60 deg.-60 deg..



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